

10/549439

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re PCT application of  
SHUTTLEWORTH, INC., et al

)  
) **JC20 Rec'd PCT/PTO 16 SEP 2005**  
)

International Application  
Number PCT/US2004/008021

)  
) Mailing Date  
) 22 June 2004  
)

International Filing Date  
17 March 2004

)  
) Agent's File  
) Reference:  
) 3161-309SHUT  
)

Title of Invention  
RAPID RECONFIGURABLE  
SERVO CORRECTION ZONE  
CONVEYOR

SUBMISSION OF APPOINTMENTS OF AGENT; FORMAL  
DRAWING SHEETS AND SUBSTITUTE SHEET 2 OF  
REQUEST

Commissioner for Patents  
P O Box 1450  
Alexandria, VA 22313-1450

Attn: RO/US

Dear Sir/Madam:

Applicant submits herewith five Appointments of Agent and substitute formal drawing sheets 1-21. We are also enclosing substitute sheet 2 of the Request with a correction in the applicant/inventor for SHUTTLEWORTH, James J. We believe that this application conforms to the requirements of the PCT.

"Express Mail" label number EV33408680345  
Date of Deposit 22 June 2004  
I hereby certify that this paper or fee is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR §1.10 on the date indicated above and is addressed to Mail Stop PCT, Commissioner for Patents, PO Box 1450, Alexandria, Virginia 22313-1450.  
[Signature]  
Signature of person mailing paper or fee

Respectfully submitted

By [Signature]

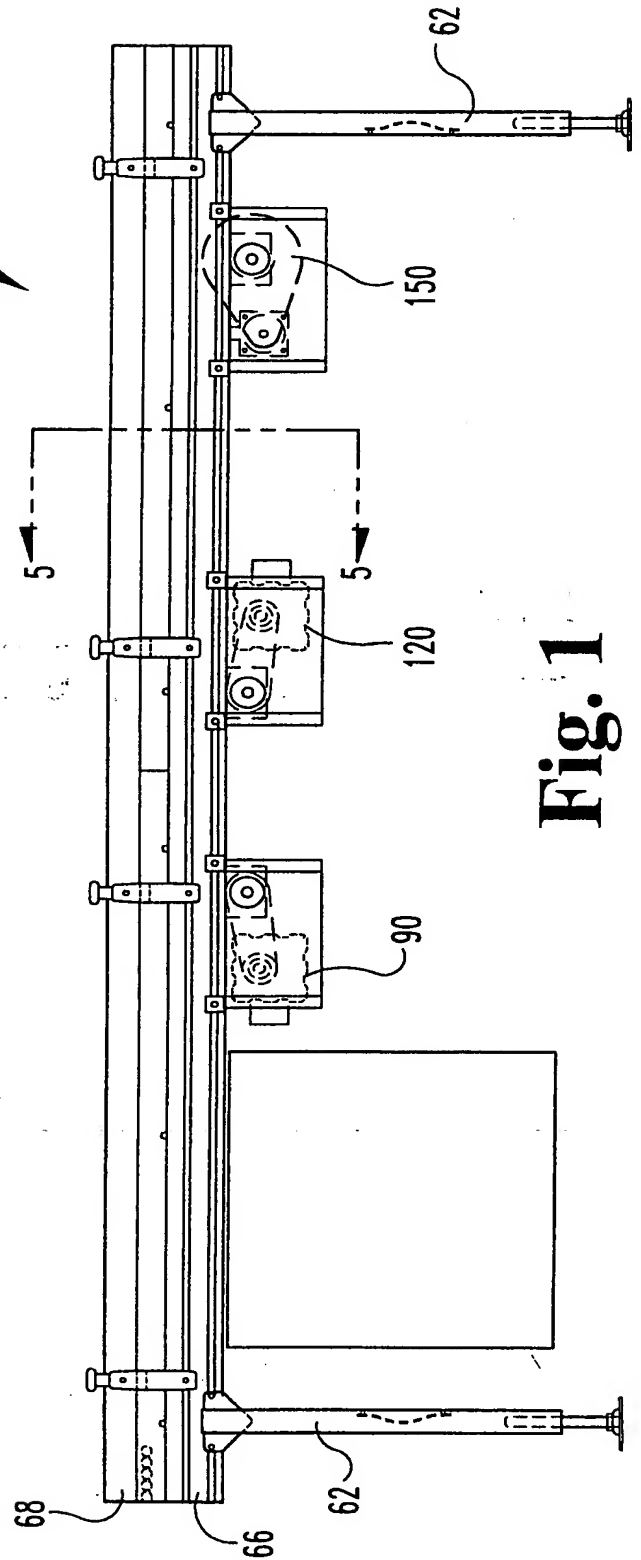
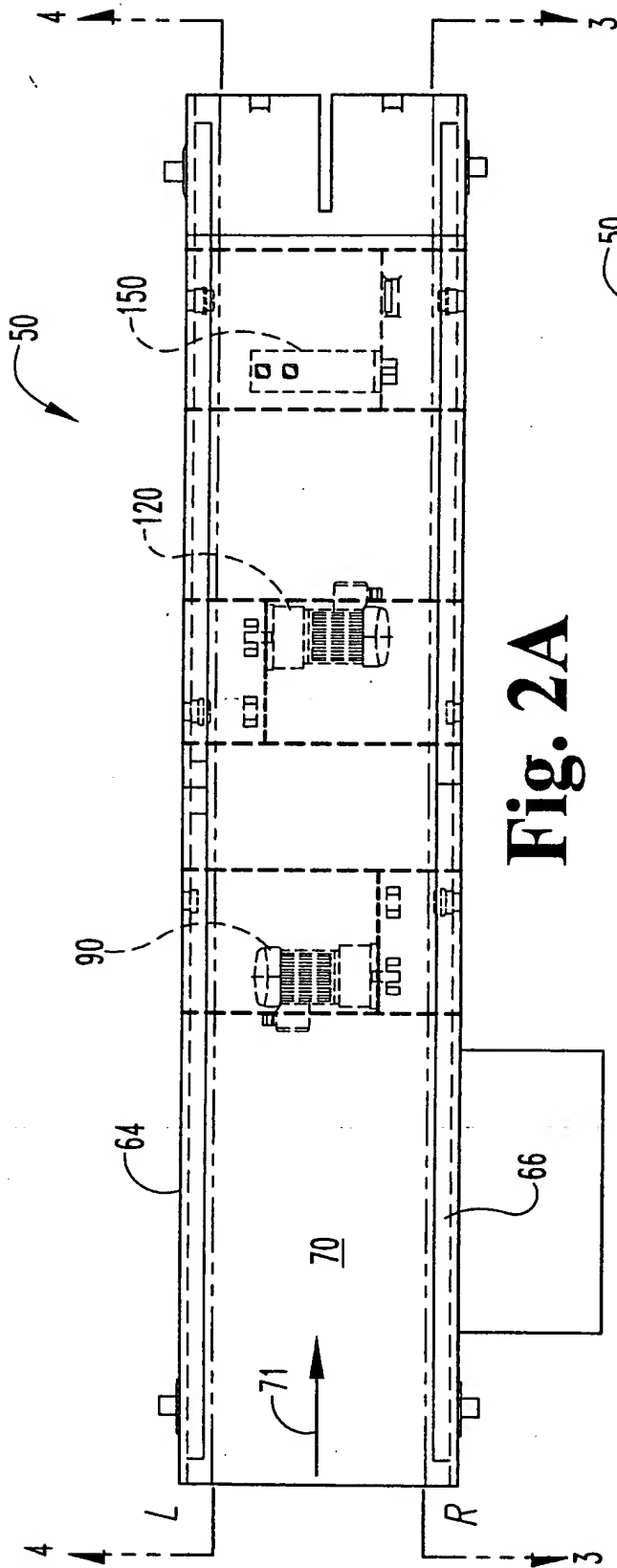
John V. DANILUCK, #40,581  
Woodard, Emhardt, Moriarty,  
McNett & Henry LLP  
Bank One Center/Tower, Suite 3700  
111 Monument Circle  
Indianapolis, Indiana 46204 US  
(317) 634-3456

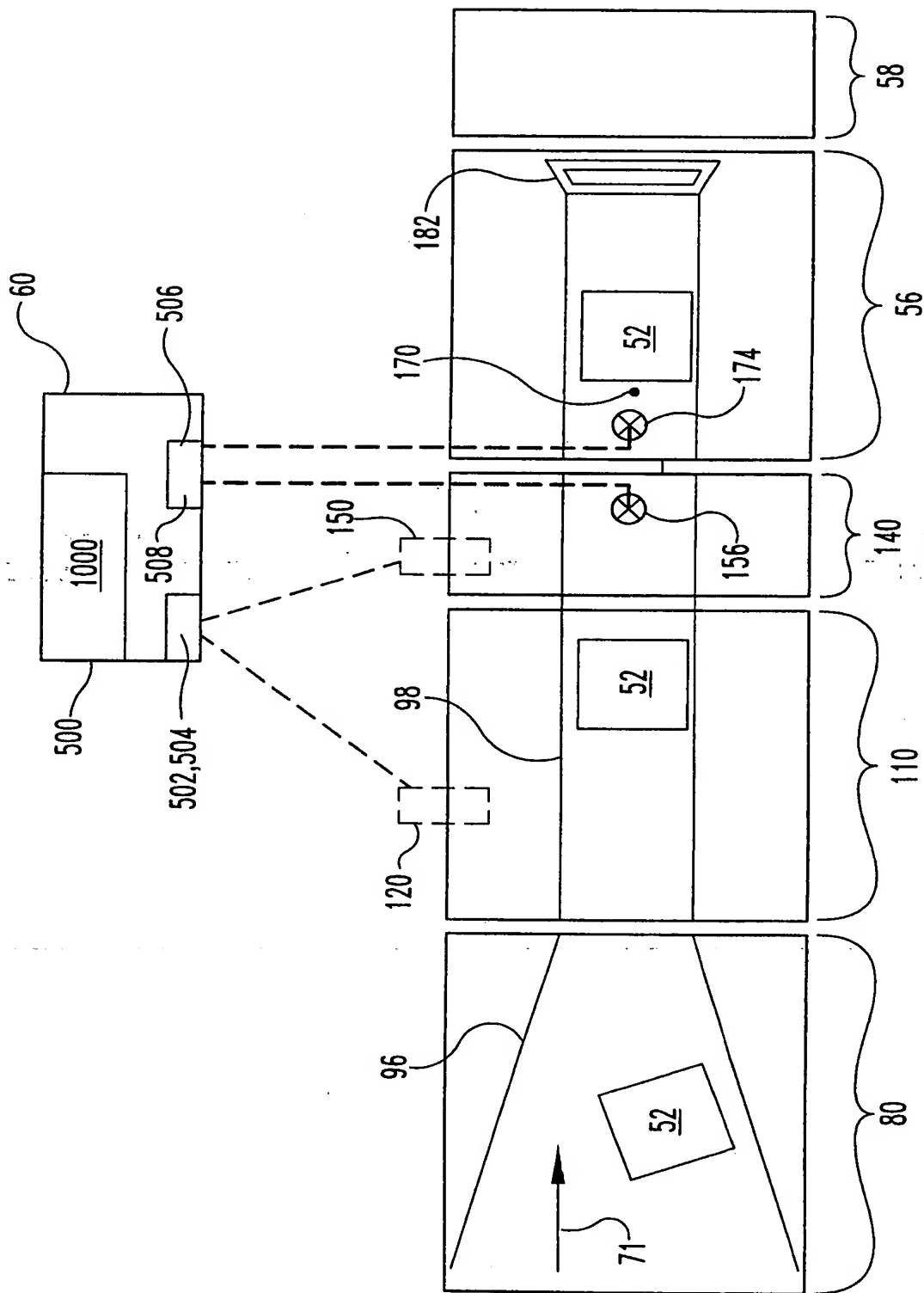
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Enclosures: Five Appts. of Agent; Formal Drawing Sheets 1-21;

Page Two of Request

cc: IB with Page 2 of Request and Appts. of Agent

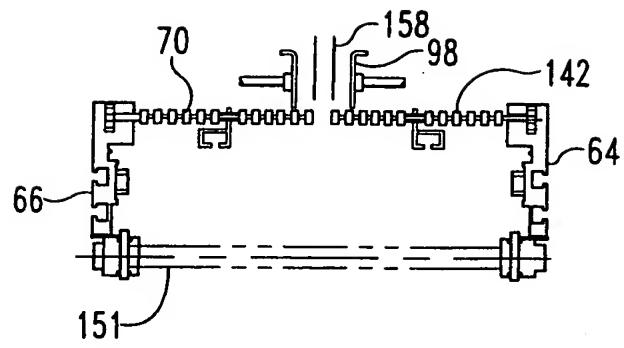
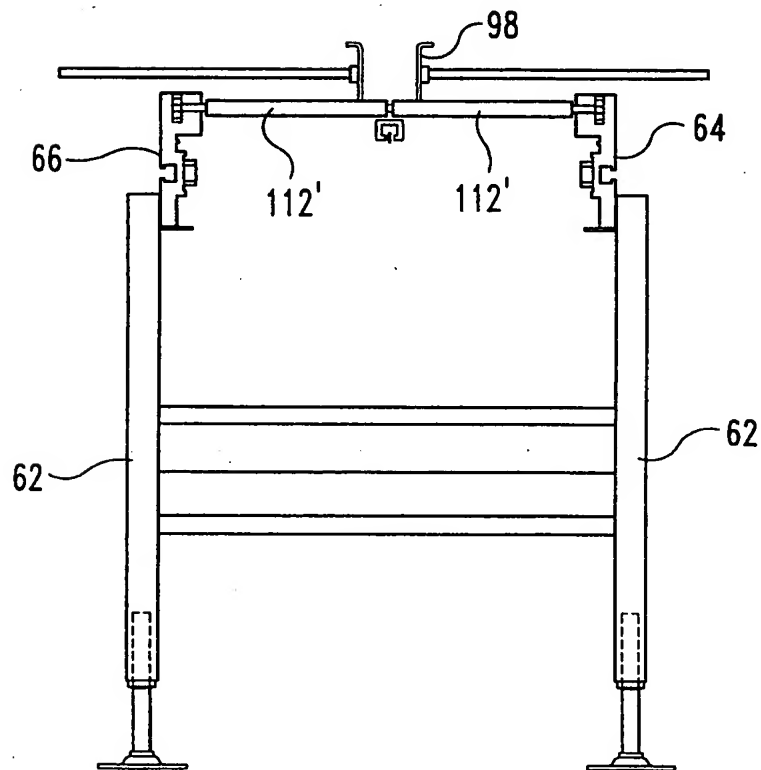




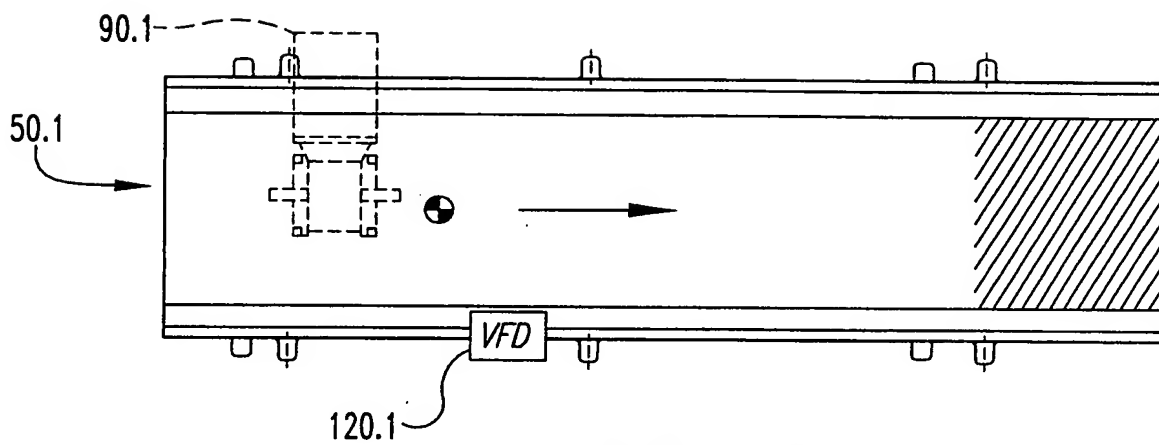
**Fig. 2B**



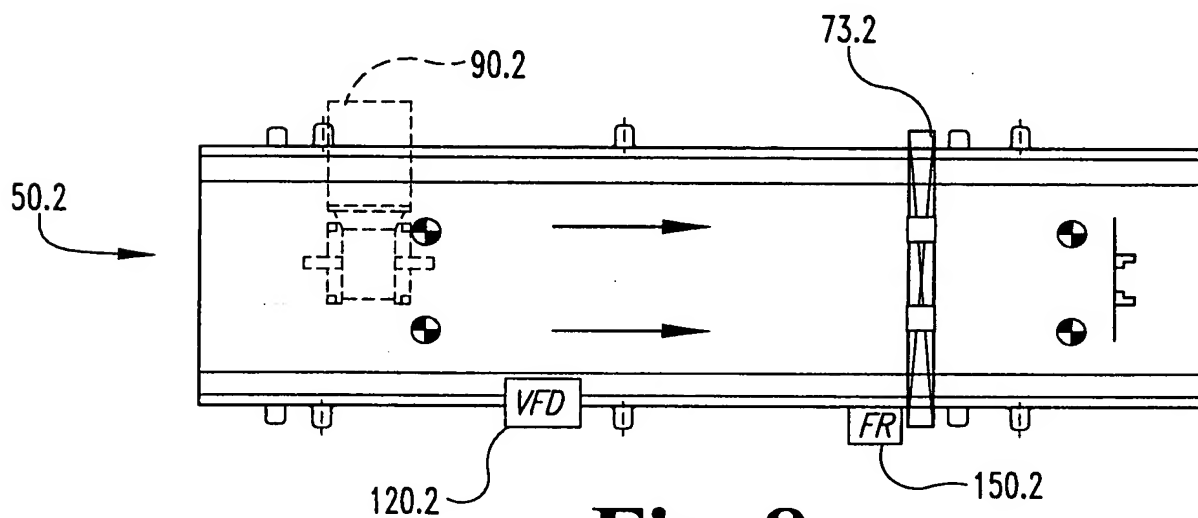
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**Fig. 6****Fig. 5**

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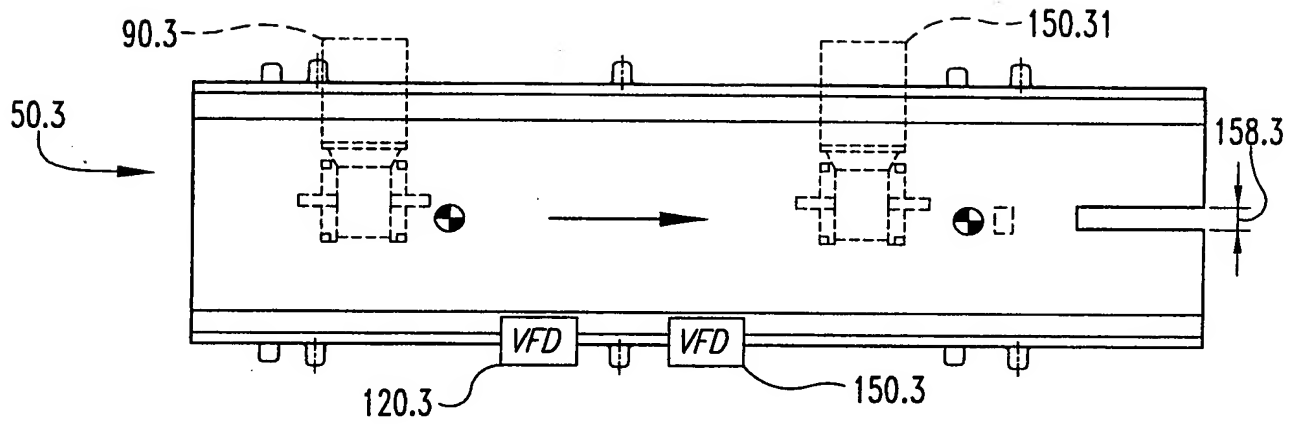
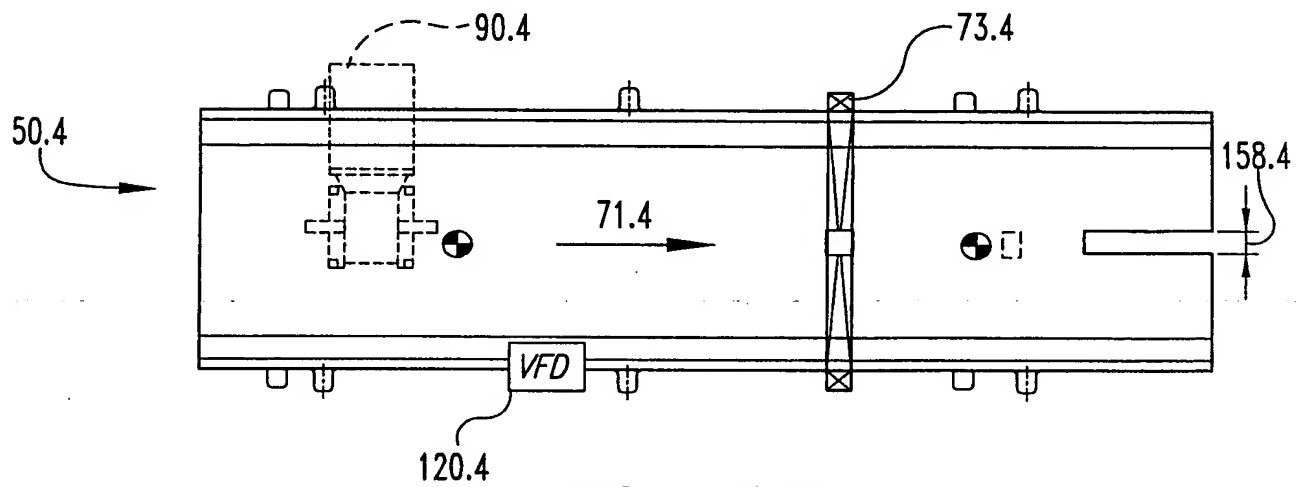


**Fig. 7**



**Fig. 8**

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**Fig. 9****Fig. 10**

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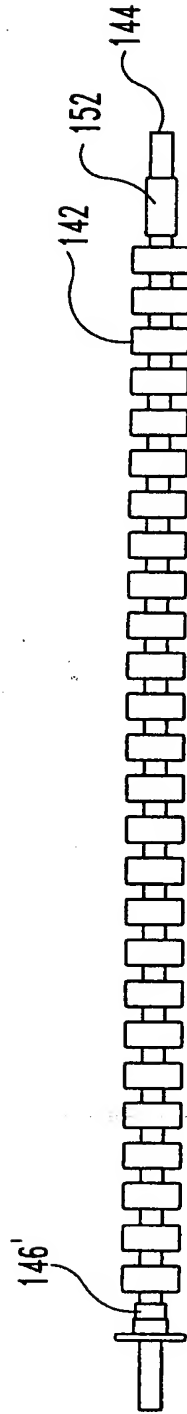


Fig. 11

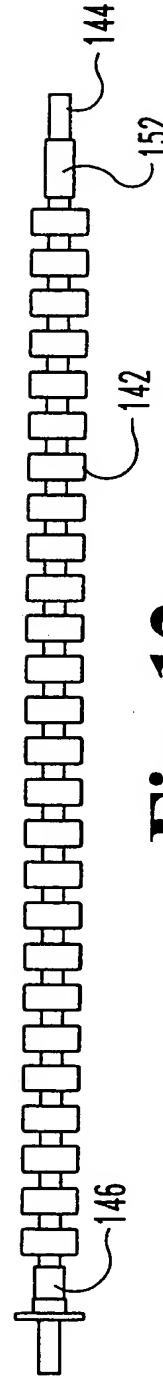


Fig. 12



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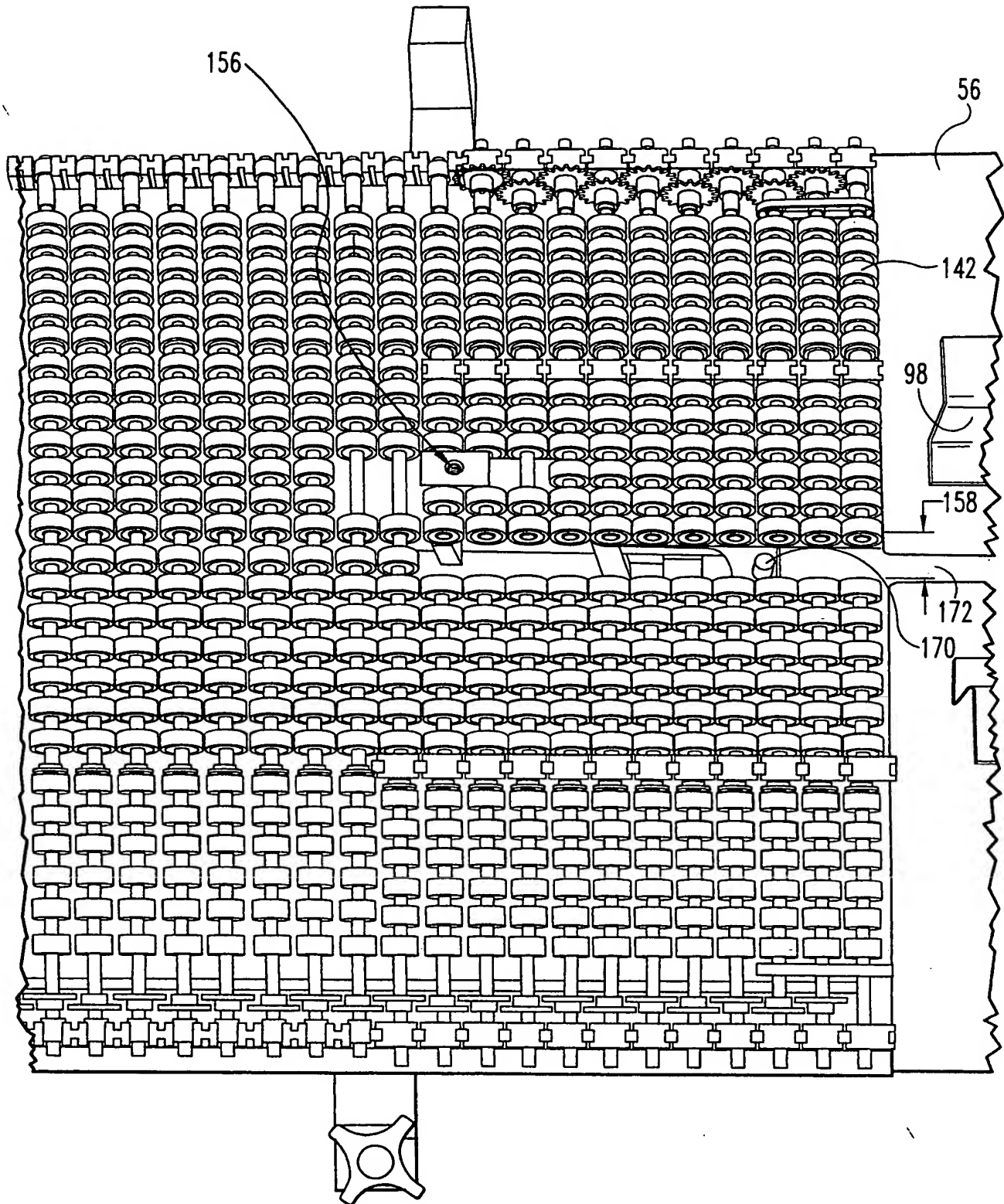
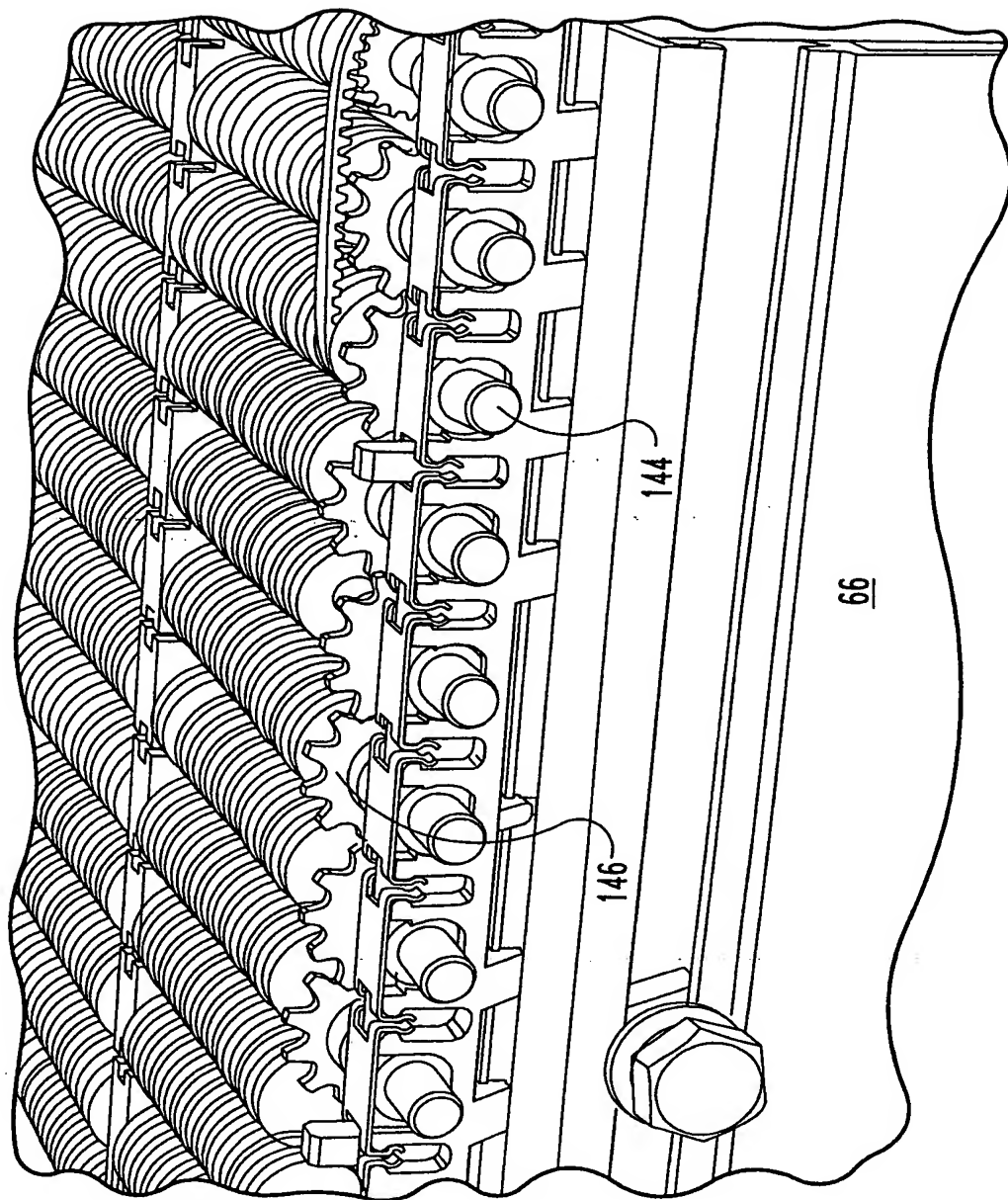
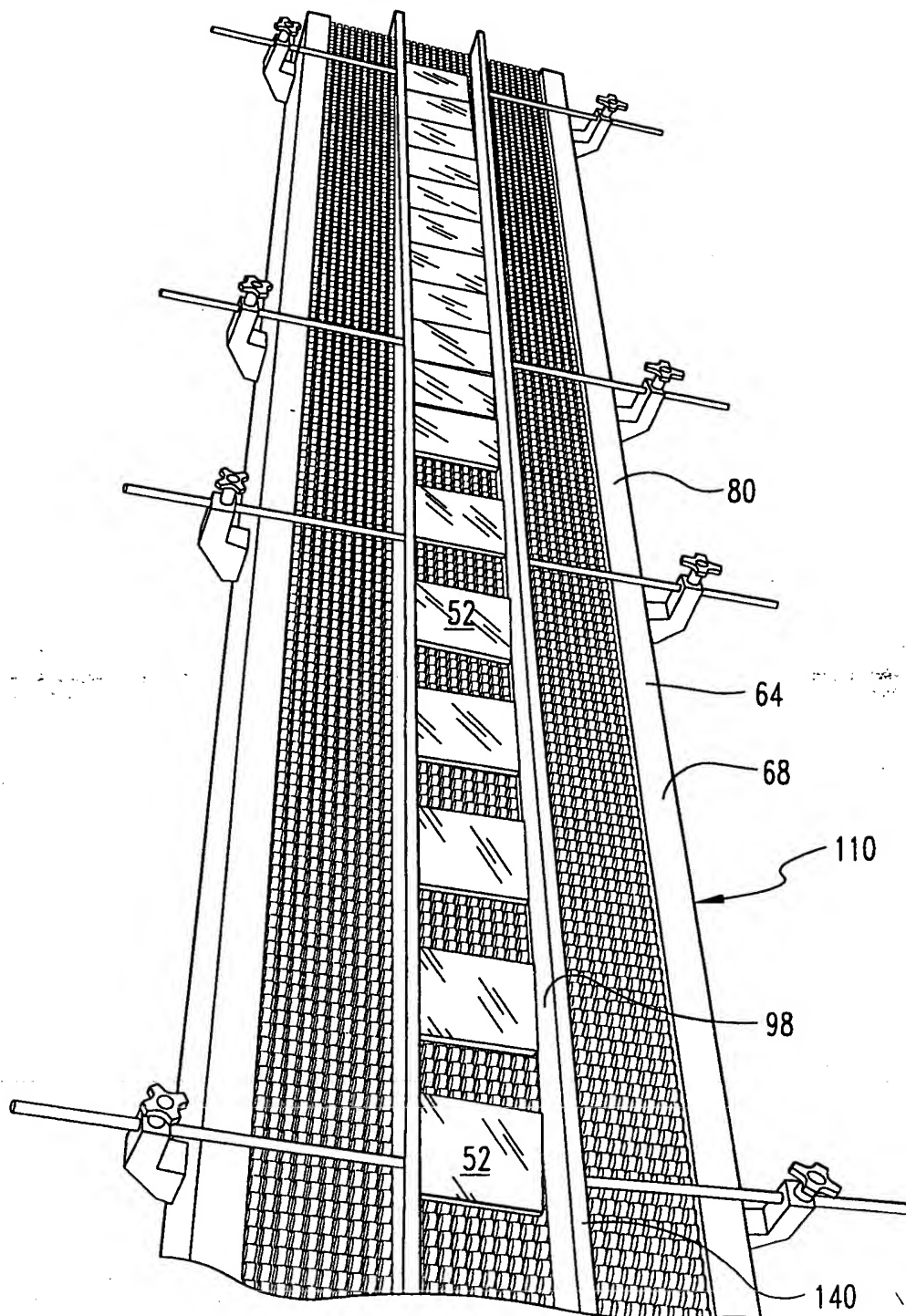
**Fig. 13**

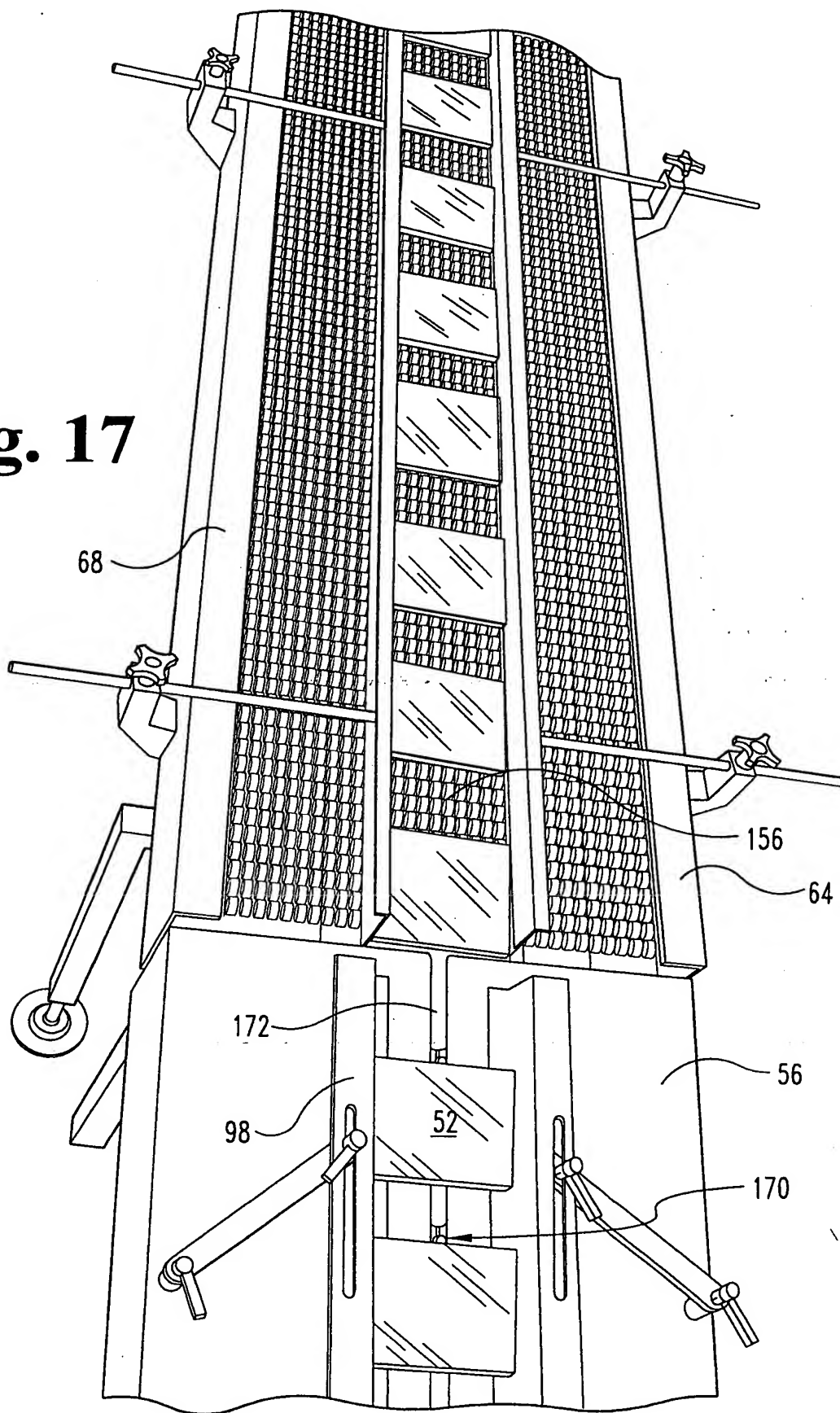
Fig. 14



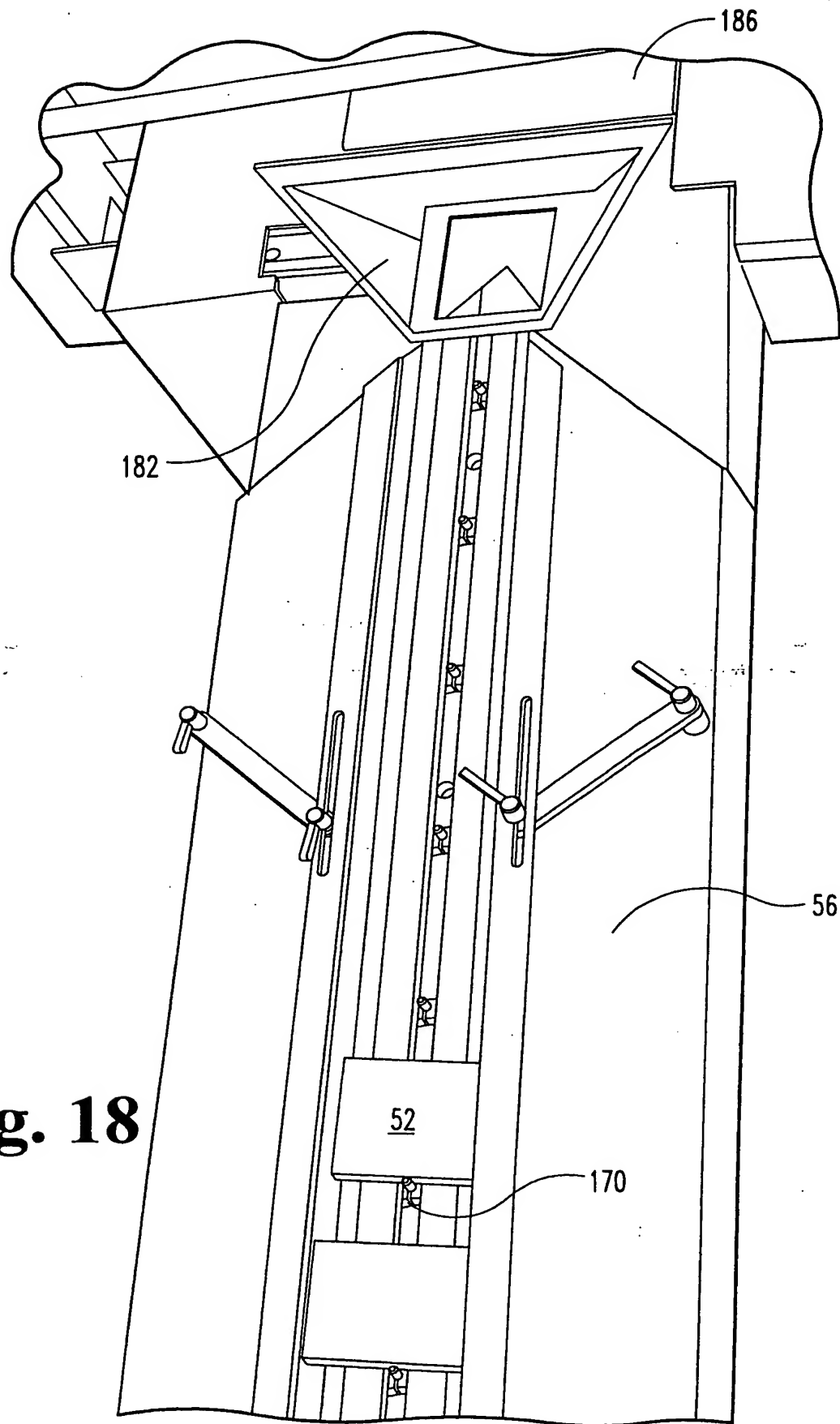


**Fig. 16**

**Fig. 17**



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**Fig. 18**

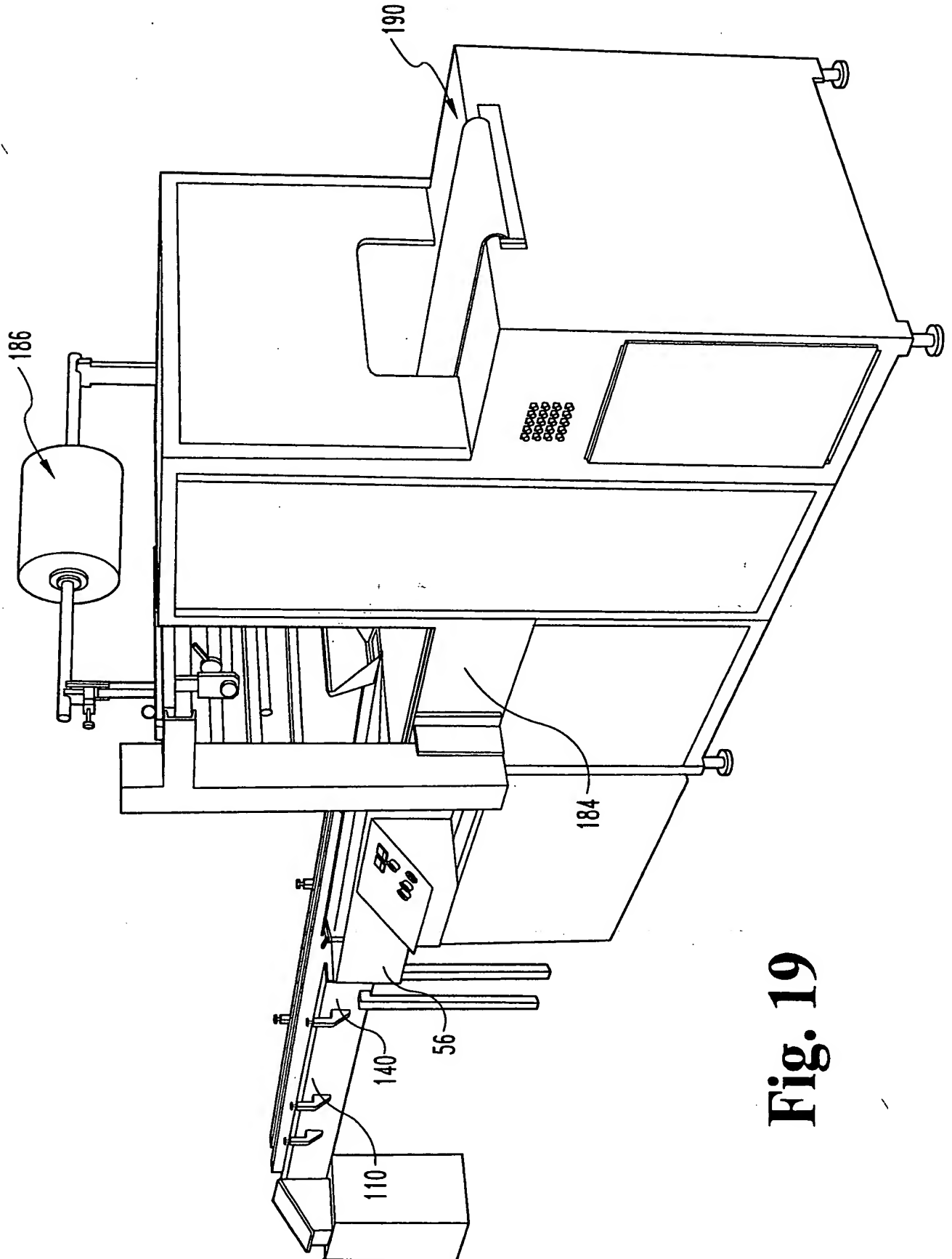
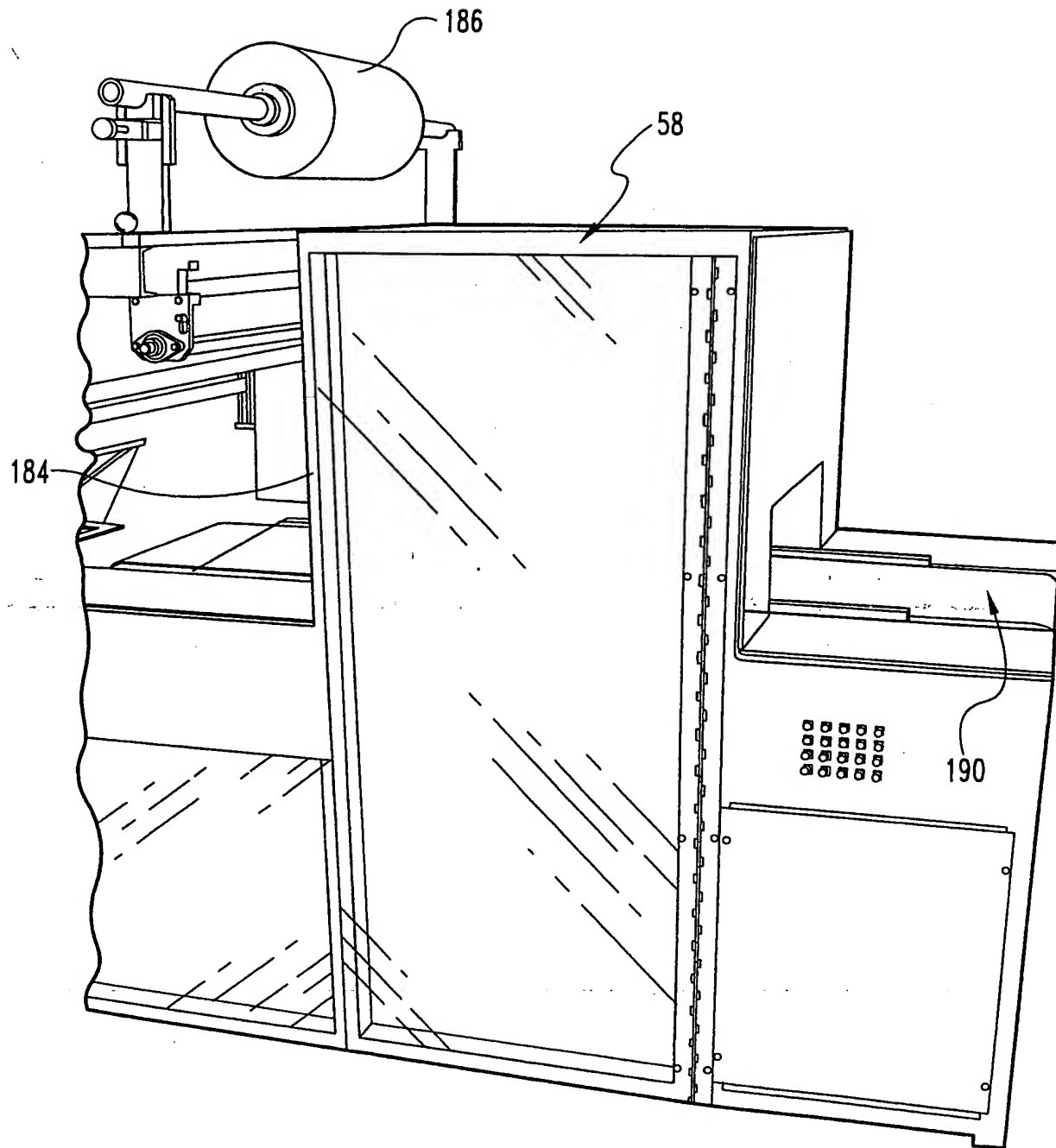
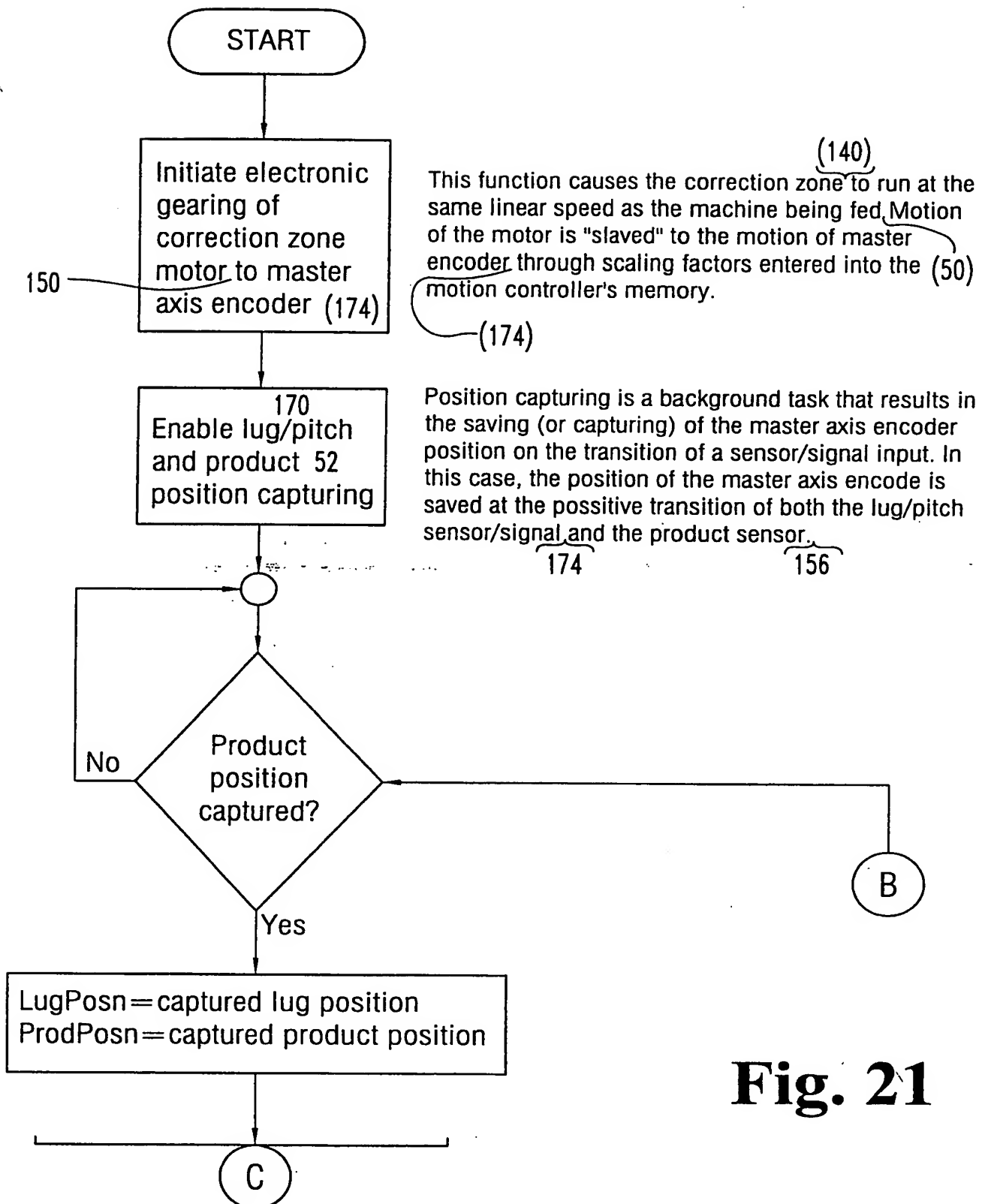
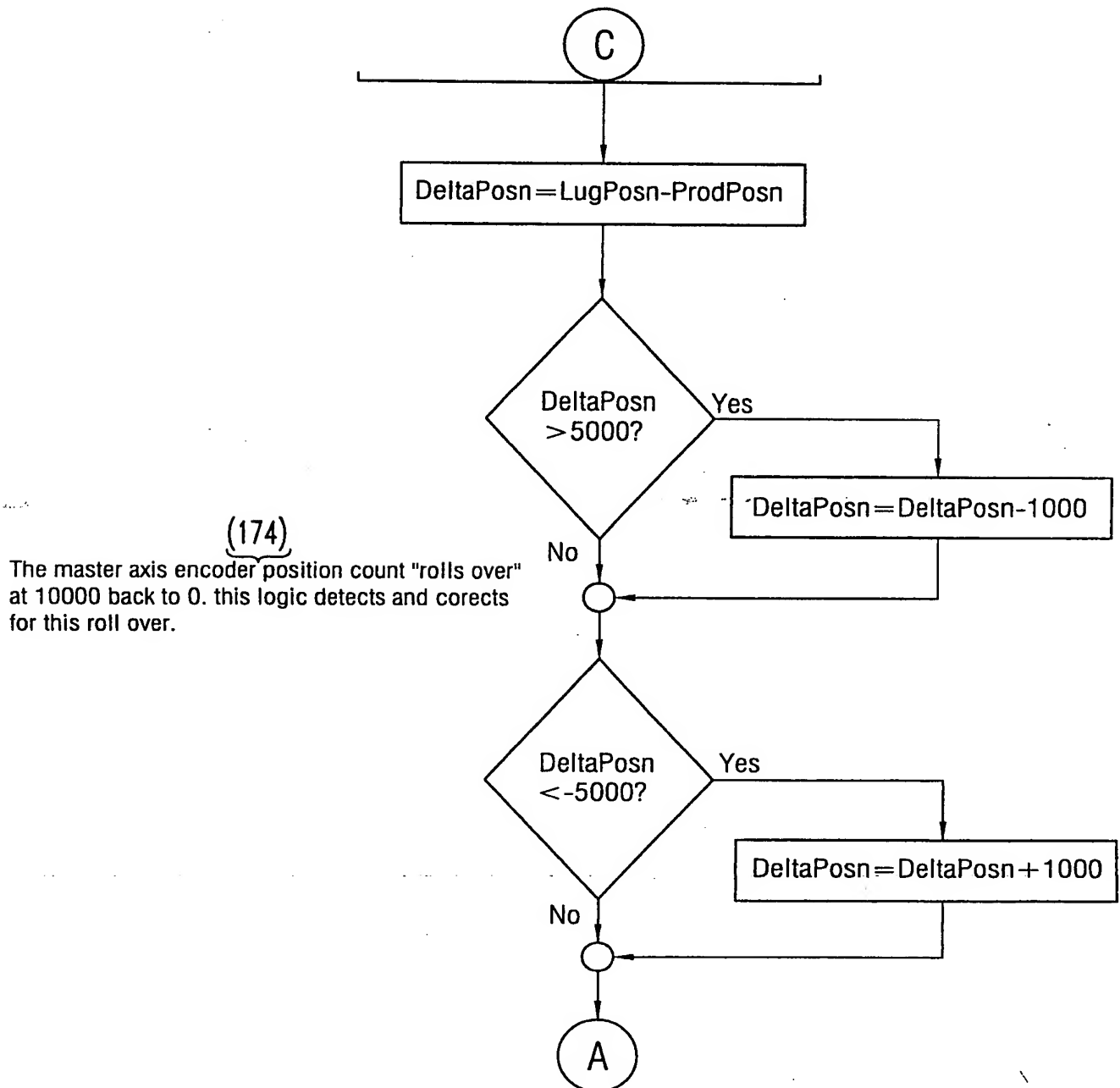


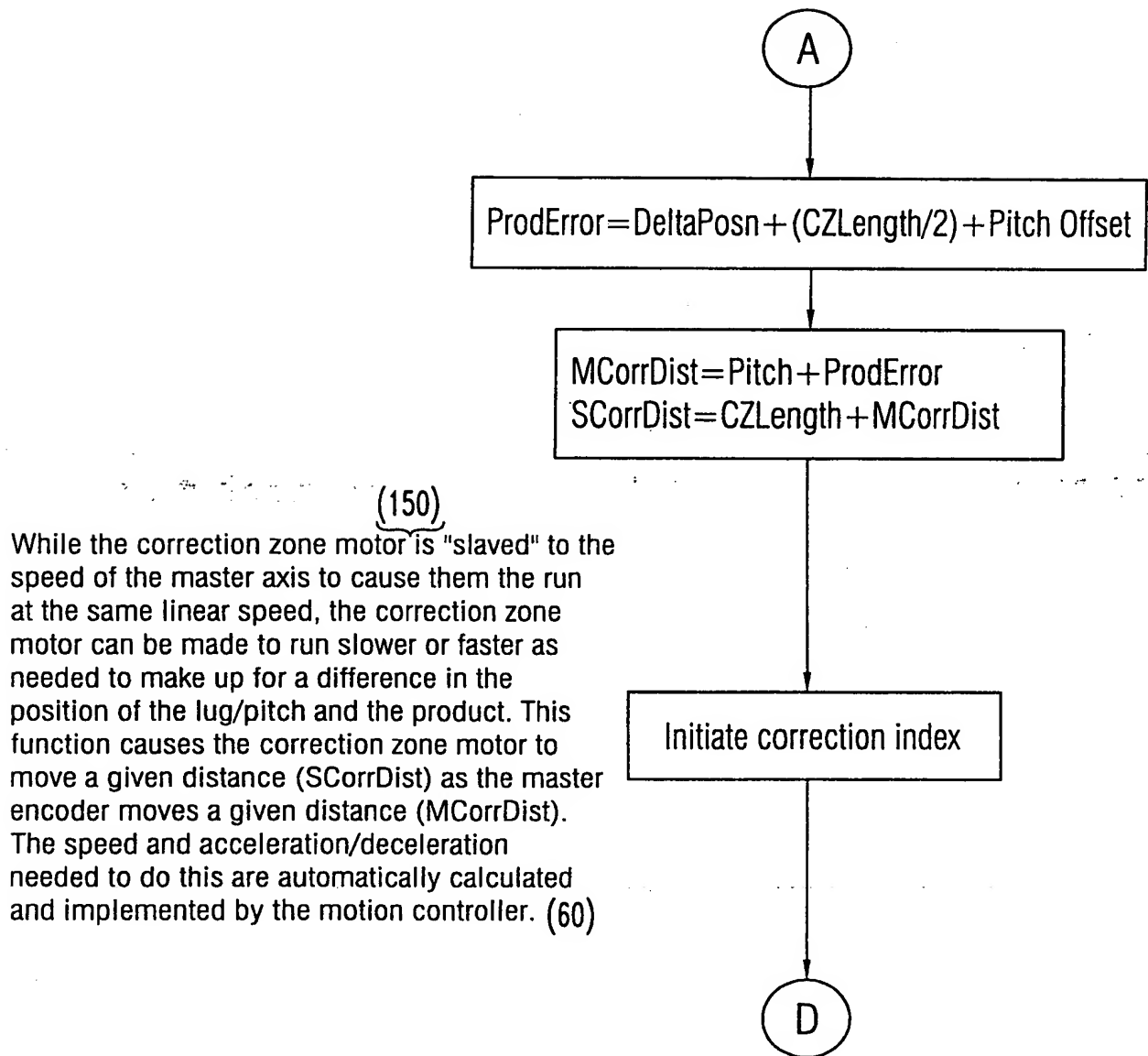
Fig. 19

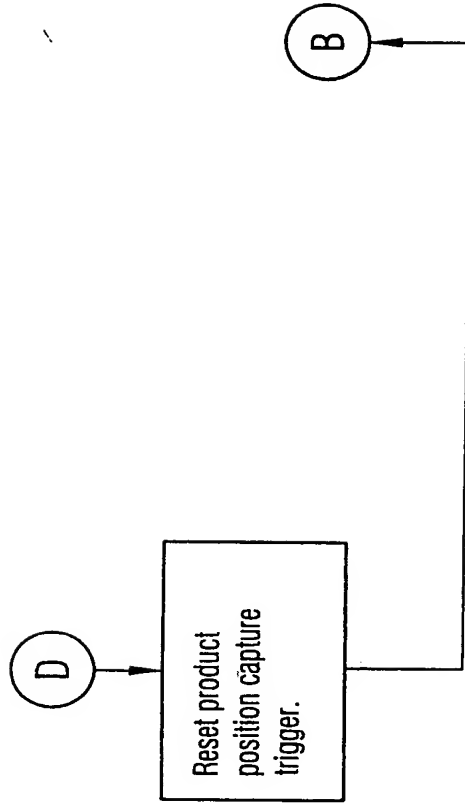
**Fig. 20**



**Fig. 21**

**Fig. 22**

**Fig. 23**



Whenever a position capture is triggered, the trigger must be reset before another capture can occur. The lug/pitch position capture trigger is automatically reset on the negative transition to the lug/pitch sensor/signal. The product position capture trigger is programmatically reset here.

## Fig. 24

### Variable Description

- CZLength: Correction zone length (in inches) entered via the OPI.
- Pitch: Distance between lugs/pitch marks (in inches) entered via the OPI.
- LugPosn: Position (in encoder counts) of the lug/pitch mark.
- ProdPosn: Position (in encoder counts) of the product.
- DeltaPosn: Difference between LugPosn and ProdPosn. Distance (in inches) that the product leads/lags the lug/pitch mark.
- ProdError: Product position error. Distance (in inches) that the product needs to be advanced/retarded so that it can match the position of the lug/pitch mark.
- PitchOffset: Manual lug/pitch mark adjustment factor (in inches) entered via the OPI. Can be used to change the apparent position of the Lug/pitch mark sensor/signal instead of changing its actual physical position.
- ScorrDist: Slave correction distance. Correction zone motor distance moved during a correction index.
- McorrDist: Master correction distance. Master axis encoder distance remaining to be used to make the correction index.

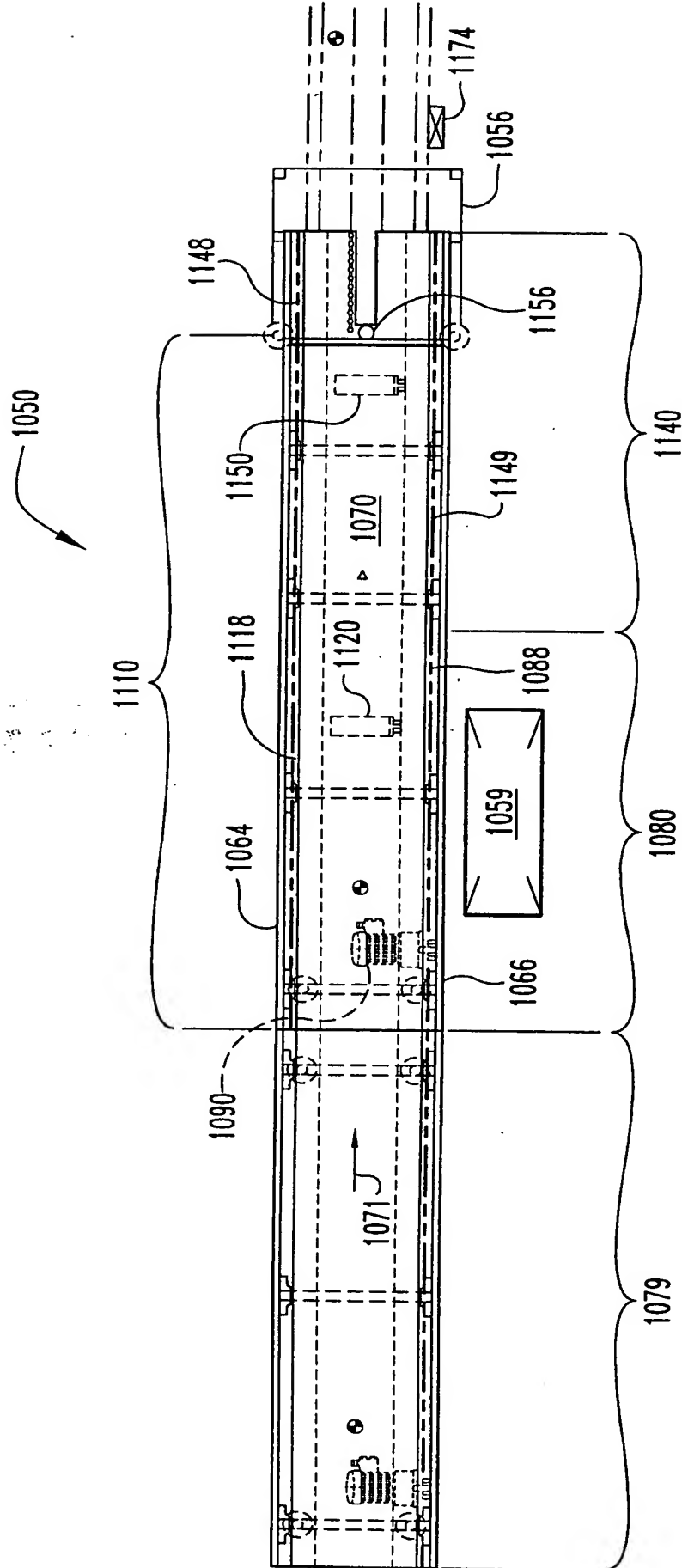


Fig. 25

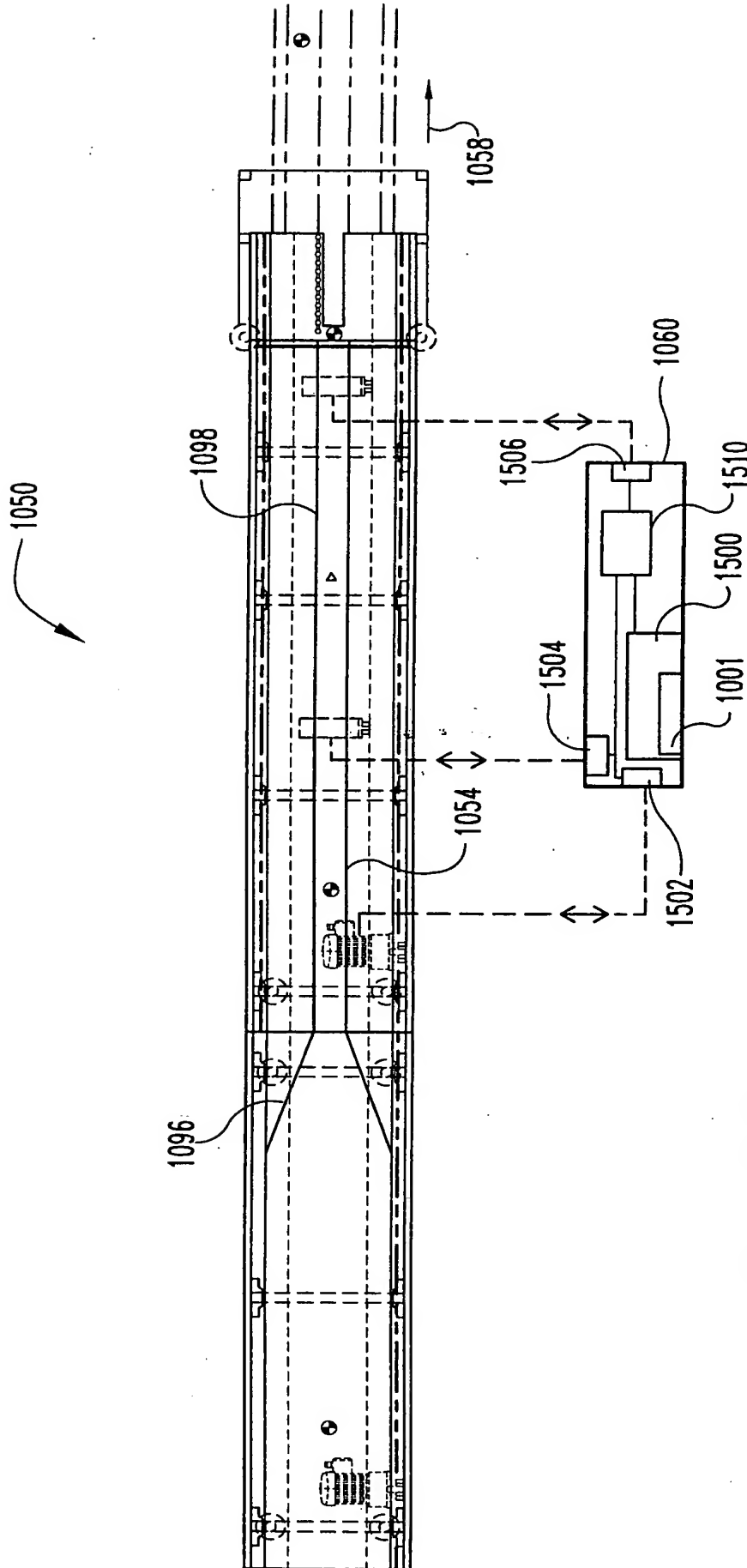


Fig. 26